Smart Ticketing System in Metro Rail

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Abstract: ***Railway Transport remain some of the most vital modes of travel all over the world and specially in india. Therefore, all their operative techniques have to be simplified for deriving the best results. These technology were engaged for providing one of the best service by the railway department and they provide*** *RFID railway reservation* ***technology. This makes much more easier for the customers means passengers and they help them without affecting any problems. The main concept of implementing such system will make the reservation ticketing and the ticket process makes much easier. These type of tags are used for the verification process and they can be used to avoid the fool proof respectively. Here, lot of passengers are using railways and they need to be somewhat more enriched in securities. These RFID tags are much more easier to scan and they are cheap and reusable too. These kind of technologies increases more revenues to the government and makes the ticketing process as much as easier as well. These RFID tag makes the exact location for the Passengers and they make such more secure and luggage as well as possible. Here the way of using the RFID is much more different from all the usage among the real time examples the RFID were scanned and they check using the program which was dumped into it. By scanning the RFID tag makes much more initial process and they are safer to use when compare to barcode and other scanning type of process like qrcode respectively.***

I. INTRODUCTION

RFID is also known as the frequency identification device and which was in the form of tags these are the upcoming technologies. RFID projects and these technologies were used and they are much more efficient too. These type of rfid tags are used to identify the radio waves automatically and in stoes some kind of values into it. Generally, the rfid tag consists of the anyenna which is inbuilt in the tag and which used as the reader the chip as well as possible respectively. The RFID may consists of two main parts like the reader part and the tag. The RFID tag and reader transfers the message through electro mangnetic waves and they have prior modules. This RFID system uses with the technology of embedded systems and they provide such an automated ticketing syste in the railways. These type of RFID project has been implemented and they have utilised as well as possible.

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This system makes the installation of these RFID circuits everywhere in the metro trains as well as possible. These Kind of reader circuit make the calculations much more easier and they simplify as well as the ticket charges with some valid time on it. Since these kind of systems are much more loved by the passengers respectively.

II. RFID MODULE

Generally, The RFID module operating at the frequency at 125khz and these kind of RFID are the very low cost applications on it. The RFID reader module available with the inbuilt of antenna which is placed on chip. These kind of reader can be power driven with about 5v power supply. The module can be power uped and the transmit pin of the module to the receiver pin of the module. These kind of RFID can be shown at the reading distance and the can be considered as the output.

Fig. 1 RFID Module

The RFID consists of two components names tag and reader. These king of rfid tags are much more similar to the barcode label and they can be in various sizes. The tag contains an antenna which is connected with the small microchip and they can able to store upto 2kb of data. Since from the barcode the scanner scans and they get the result from it. When the rfid scanner scannes and the electro magnectic waves transmits and receives data among them respectively.

These kind of rfid tags are used as two types of memory and they are the read only memory they cannot able to make such programmed into the chip. Passive tags are the cheapest and very efficient and they can be able to make such as rfid tags. These kind of passive tags are made into the inbuilt batteries on them.

These kind of function with these kind of rfid and these functions are lover level power levels and they can be act like much more distances.

III. ARDUINO UNO

Arduino Uno is also called as microcontroller. These board were based on the ATmega328P which has 14 digital inputs and 14 output pins, 6 analog inputs, a 16 MHz quartz crystal, a USB connection. a power jack, an ICSP header and a reset button and these are the components onto it. It contains the much more power cable connected to the computer and they are from AC to DC converter and they connects into the Arduino board respectively.

Those Arduino have operated at different voltages and they are much more similar with 5v.

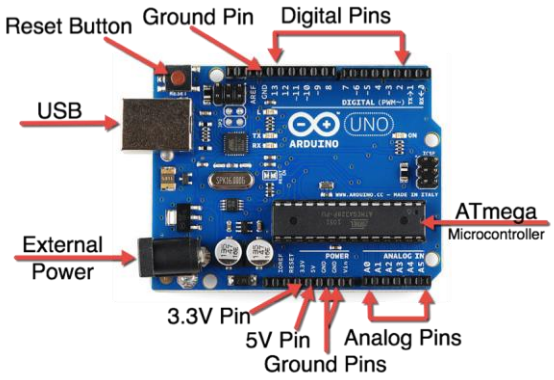


Fig. 2 Arduino UNO

Arduino UNO to ATMEGA328 Pin Mapping

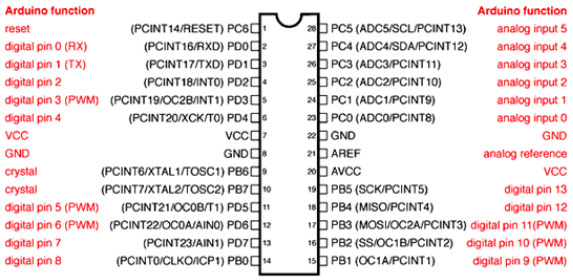


Fig. 3 ATMEGA328 Pin Mapping

DC Motor

DC Motor which is used as the mechanical source for the external sources. By getting the mechanical energy from the electrical energy these kind of motors are used. These types of motors are much more reliable with the magnetic waves as well as fields into it. There was some little bit of internal mechanism they can be in the form of electromechanical. The motor is changed occasionally which is due to the current flow in the direction of the motor.

The motor which was used is a kind of 12v motor and these kind of motor have 60rpm centre shaft has been implanted. The motor consists of such more gears and they can be fixed in such hardened steel as well as possible. The motor assembly are being enclosed with some plastic ring on it. The gearbox can be lubricated and they are sealed with some kind of material called lithium grease and this makes efficiency high and less it doesn't require regular maintenance respectively. The motor gives the rate of 60 RPM at 12V but the motor can able to run smoothly from 4V to 12V and it gives some wide range of RPM into it and torque also. The two main functions named RPM and load current they function as the torque and as well as voltage to the current of the voltage of the function.

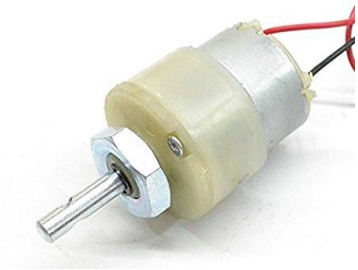


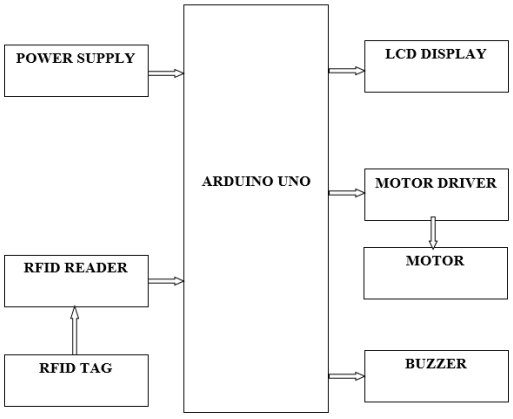
Fig. 4 DC Motor

Buzzer

Basically the buzzer can able to produce some kind of sound energy this can be defined as the reverse of the piezoelectric effect. There is a some kind of principle to the piezo electric effect there can be pressure variation and some strain into the electric potential onto it. Generally these kind of buzzers are used for alert systems and they can be used corresponding to the switches which was connected to the buzzer respectively. These kind of buzzers having some alarm circuits and they can be executed with the help of the counter signal which was given to it. There can be various amount of voltage variation can be applied to those circuits. These kind of buzzers consists of two piezo crystals between two conductors and a amount of potential is given to the crystals and they can able to conduct into the crystals and these kind of things results in the sound. Mostle all the buzzers can able to producr sound to the range of 2 to 4khz.

Fig. 5 Buzzer

IV. BLOCK DIAGRAM OF THE PROJECT



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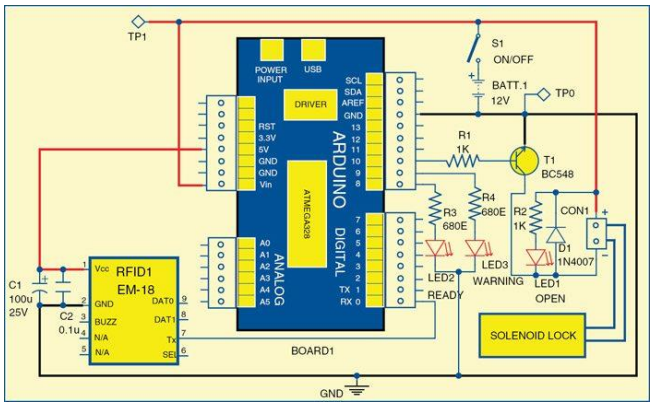
Description of Block Diagram

The RFID tag has some kind of advantages that there can be no duplication is possible. The cost of Manufacturing RFID tag is very less when considered to other tags. The RFID tag having some kind of reader and these kind of RFID scanner is placed at the every entry and exit place of the train doors. When the passenger enters the entry point of the platform gate they can be much more easy to use these tags. The details can be displayed in the display tag. The door can be open and they can able to automatically close for it.

These kind of RFID reader can be initialized and the reading mode will be displayed into it. The message will be displayed on the display screen when the passengers uses the rfid tag and scans the rfid tag to the rfid scanner it reads the details which was stored in the rfid tag respectively. Generally the rfid scanner can able to transfer 12bit unique and they can be at 9600 baud rate these microcontroller detects the passengers and displays the details of the person and it checks whether valid or not

Circuit Diagram



Arduino IDE

This rfid project is developed with the Arduino programming language and this kind of software used the Arduino UNO IDE software with the help of the Atmega328 onto the Ardunio UNI having the special feature of bootloader and this allows us to upload code to the hardware respectively These kind of programmes communicates using STK500 protocol means a kind of restriction. These can able to bypass or able to broke the bootloader which was given to it. The program to the microcontroller with the serial programming with the bootloader is much more easier than everything.

V. CONCULSION AND FUTURE SCOPE

RFID has many positives and as well as negatives when come to real time applications these kind of RFID can takes place with lesser limitations respectively. By using RFID in real time process the more kind of getting easier data's from the passengers through database and these kind of RFID costs very low and they can be reusable. While the researching kind of peoples are much more easier to identify the scanning and the scanner technology is much more safer and makes much more easier when compare to others respectively. If the project is implemented to railway and they can be much more embedded systems and they are very similar to the scanner technologies.

This kind of Fast Ticketing process can be implemented with the help of the RFID scanner as well as the RFID tag into it. When compared to the other ticketing process these kind of fast and reliable technique is much more easier to implemented and expecting this project can be implemented in the railways as much as possible in 22nd centry.

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